

(No Model.)

W. H. SAWYER.
ELECTRIC CABLE.

No. 473,353.

Patented Apr. 19, 1892.

Fig. 1.

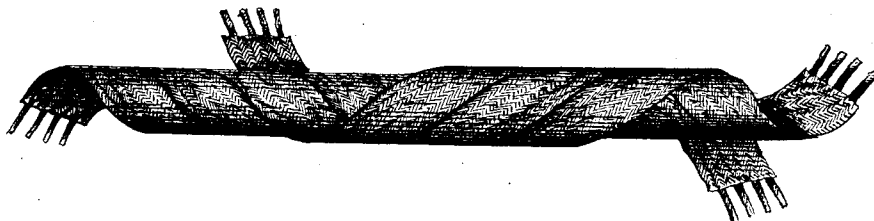


Fig. 2.

WITNESSES

Darke & Sweet
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UNITED STATES PATENT OFFICE.

WILLIAM H. SAWYER, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO THE
AMERICAN ELECTRICAL WORKS, OF SAME PLACE.

ELECTRIC CABLE.

SPECIFICATION forming part of Letters Patent No. 473,353, dated April 19, 1892.

Application filed October 27, 1891. Serial No. 410,012. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. SAWYER, a citizen of the United States, and a resident of Providence, in the county of Providence and State of Rhode Island, have invented new and useful Improvements in Electric Cables; and I do hereby declare the following to be a full, clear, and exact description of said invention, reference being had to the accompanying drawings, which form a part of this specification.

My present invention relates to improvements in that class of electric cables which are especially designed for telephone service, but which are also equally adapted for telegraph purposes, the object being to provide an electric cable wherein the wires or conductors of each metallic circuit are kept equidistant from each other to produce an equilibrium of inductive effect and to provide the greatest amount of separation within the smallest possible space, thereby securing a low specific inductive capacity combined with high insulating properties.

To the above ends my improvements consist, essentially, of a cable composed of a central flexible tube or core, formed by interbraiding the wires or conductors of one or more metallic circuits with suitable fibrous material into tubular form or by interbraiding said wires or conductors with fibrous material into a flat strip or ribbon and then twisting, winding, or coiling said strip or ribbon into a flexible tube, then superimposing upon said tube or core a series of successive strips or tubular covering containing the wires or conductors of a series of metallic circuits, the wires or conductors of each successive strip or tubular covering being wound on in reverse directions to those of each underlying section and at an increasing or decreasing angle or pitch to the adjacent wires, thereby securing the greatest amount of separation and avoiding parallelism to produce a cable of the character described, and finally inclosing the same within a lead sheath or other suitable covering, all as will be hereinafter fully described, and specifically designated in the claims.

In the accompanying drawings, Figure 1 represents a side elevation of a section of

wires interbraided with fibrous material into tubular form with a superimposed section of wires interbraided with fibrous material thereon, the wires of the superimposed section being wound on in a reverse direction and at an increased or decreased angle or pitch to the wires of the first section; and Fig. 2 represents a similar view showing the wires of each section interbraided with fibrous material into a flat strip or ribbon, which is wound or coiled into tubular form with a similar disposition of the angles or pitch of the coils of wires, as shown in Fig. 1.

In the practice of my invention the central flexible tube or core of the cable may be constructed in a variety of ways, such as interbraiding the wires or conductors of a series of metallic circuits with suitable fibrous material into tubular form, or by interbraiding said wires or conductors with fibrous material into a flat continuous strip or ribbon and then twisting or winding said strip or ribbon into tubular form, or by coiling the wires or conductors of one or more metallic circuits together to form a central flexible tube or core, or by accomplishing the same result in any other preferred manner, the wires or conductors of each metallic circuit in all cases being kept at approximate equidistances.

Upon the core or foundation thus provided is superimposed successive series of metallic circuits interbraided with fibrous material in any preferred manner, the wires or conductors of each series being maintained at approximate equidistances, and the wires or conductors of each successive series being wound or coiled in a reverse direction and at an increased or decreased angle or pitch to the wires or conductors of each underlying series. The cable formed in the manner described is adapted to be inclosed within a lead pipe or other suitable covering in a manner well known.

By means of my improved construction all of the wires or conductors of each metallic circuit are rendered approximately equidistant, thereby producing an equilibrium of inductive effect and providing a cable of low inductive capacity and high insulating properties.

Having thus described my invention, what

I claim as new and useful, and desire to secure by Letters Patent, is—

5 1. An electric cable composed of one or more metallic circuits interbraided with fibrous material into tubular form to provide a central core or foundation and a successive series of metallic circuits similarly interbraided with fibrous material upon said core or foundation, the wires or conductors of each successive series being wound on in a reverse direction and at an increased or decreased angle or pitch to the wires of the core or foundation, substantially as specified.

15 2. An electric cable formed of one or more metallic circuits interbraided with fibrous material into tubular form, the wires or conductors of each succeeding series being wound in

a reverse direction and at an increased or decreased angle or pitch to that of the wires of each adjacent series of metallic circuits, substantially as specified.

3. In an electric cable, the combination of one or more metallic circuits interbraided with fibrous material into tubular form with a successive series of metallic circuits similarly interbraided, and an inclosing sheath or other suitable covering, substantially as specified.

In testimony whereof I affix my signature in presence of two subscribing witnesses.

WILLIAM H. SAWYER. [L. S.]

Witnesses:

GILMAN E. JOPP,

CHARLES H. WAGENSEIL.